RSA SecurID Ready Implementation Guide

Last Modified: March 8, 2006

Partner Information

Product Information	
Partner Name	MRV Communication, Inc.
Web Site	www.mrv.com
Product Name	LX Series
Version & Platform	LX OS 3.6.0 or later
Product Description	MRV Communications is a leading provider of network access solutions for the enterprise edge, the seam where corporate networks meet the wide-area public network and the service provider edge. The LX-Series advance security protects access to your network. The LX-Series authenticates local and remote users while providing a secure network dialup access for remote offices and home users.
Product Category	Remote Access

Solution Summary

The MRV LX-Series Secure Console/Terminal Servers have been specifically designed with a focus on security. The LX Series multi-processor platforms have the processing horsepower to handle the FIPS approved encryption and cipher algorithms required to meet demands of today's high security environments. LX-Series platforms provide the highest and most comprehensive set security and encryption support of any Console or Terminal Server on the market today.

The RSA SecurID Authentication support is one of many authentication mechanisms available in the LX-Series products. RSA SecurID (in conjunction with RADIUS Authentication and Accounting) provides a very powerful means by which to manage all aspects of security for traditional Terminal Server, Console Server, and Out Of Band Network applications.

LX-Series Console and Terminal Servers (in conjunction with RSA SecurID two factor authentication), coupled with the power of RADIUS accounting capabilities provide administrators not only with a strong sense of security, but also a high level of accountability and logging capabilities.

Partner Integration Overview	
Authentication Methods Supported	Native RSA SecurID Authentication, RADIUS
List Library Version Used	5.0.3.2
RSA Authentication Manager Name Locking	Yes
RSA Authentication Manager Replica Support	Full Replica Support
Secondary RADIUS Server Support	Yes, up to 2
Location of Node Secret on Agent	Stored in Flash
RSA Authentication Agent Host Type	Communication Server
RSA SecurID User Specification	Designated Users, All Users
RSA SecurID Protection of Administrative Users	Yes
RSA Software Token API Integration	No
Use of Cached Domain Credentials	No

Product Requirements

Partner Product Requirements: LX OS 3.6.0	
CPU	Motorola PQ 133MHz
Memory	128MB DRAM
Storage	No hard drive; 16MB Flash
Firmware Version	3.6.0 or higher

Operating System	
LX OS	3.6.0 or later
LX Firmware	3.6.0 or later

Additional Software Requirements	
Java JRE	1.4.2 or later

Agent Host Configuration

To facilitate communication between the LX Product line and the RSA Authentication Manager / RSA SecurID Appliance, an Agent Host record must be added to the RSA Authentication Manager Database and RADIUS Server Database when using RADIUS. The Agent Host record identifies the LX Product line within its database and contains information about communication and encryption.

To create the Agent Host record, you will need the following information.

- Hostname
- IP Addresses for all network interfaces
- RADIUS Secret (When using RADIUS Authentication Protocol)

When adding the Agent Host Record, you should configure the LX Series as a Communication Server. This setting is used by the RSA Authentication Manager to determine how communication with the LX Series will occur.

Note: Hostnames within the RSA Authentication Manager / RSA SecurID Appliance must resolve to valid IP addresses on the local network.

Please refer to the appropriate RSA Security documentation for additional information about Creating, Modifying and Managing Agent Host records.

Partner Authentication Agent Configuration

Setting Up RSA SecurID Authentication (Command Line Interface)

You can implement SecurID authentication at the server level and for specific interfaces and asynchronous ports on the LX unit. You must implement RSA SecurID Authentication at the server level before you can implement it on specific interfaces and asynchronous ports on the LX unit.

The basic steps for configuring SecurID authentication on the LX unit are:

1. Specifying the RSA Authentication Manager Server settings on the LX.
2. Installing and configuring the SecurID server on a Network-based Host.
3. Configuring a RSA Authentication Manager Local Subscriber. (optional)

Specifying the RSA Authentication Manager Server Settings on the LX

Perform the following operations to specify the RSA Authentication Manager settings on the LX unit:

1. Check the primary RSA Authentication Manager Server host to ensure that the RSA Authentication Manager application is running.
2. Access the AAA Command Mode on the LX
3. Use the securid authentication version command to specify the RSA Authentication Manager authentication version for the LX unit. You can specify the authentication version as Version 5, or pre-Version 5 (legacy); for example:

```
Login: InReach
Password: access
InReach:0> enable
Password: system
InReach:0>> configuration
AAA:0 >>securid authentication version version_5
AAA:0 >>securid authentication version legacy
```

4. Use the securid authentication port command to specify the socket your RSA Authentication Manager server is listening to; for example:

```
AAA:0 >>securid authentication port 1687
```

Note: The LX listens to port 5500 by default.

5. Use the securid primary authentication server address command to specify the IP address of the RSA Authentication Manager Primary; for example:

```
AAA:0 >>securid primary authentication server address 10.242.131.11
```

6. Use the securid authentication encryption command to specify the RSA SecurID encryption method for the LX unit. You can specify DES or SDI as the encryption method; for example:

```
AAA:0 >>securid authentication encryption des
AAA:0 >>securid authentication encryption sdi
```

7. To verify the LX configuration, execute the show securid characteristics command at the superuser command prompt; for example:

```
AAA:0 >>show securid characteristics
```

Note: To clear the node secret from the LX unit, use the 'zero securid secret' command.

RSA SecurID Authentication Command Examples

This section provides examples of all of the commands that are used to specify settings for the RSA Authentication Manager servers.

```
AAA:0 >>securid primary authentication server address 10.242.131.11
AAA:0 >>securid authentication port 4500
AAA:0 >>securid primary authentication server name bigsky1.com
AAA:0 >>securid authentication encryption des
AAA:0 >>securid authentication retransmit 7
AAA:0 >>securid authentication timeout 3
AAA:0 >>securid authentication version version_5
```

Note: *If you do not specify a UDP port, retransmit value, timeout, version, encryption, or name for the RSA Authentication Manager server, the LX unit will use the default values for these settings.

RSA SecurID Local Subscriber Feature

Under the RSA Authentication Manager Local Subscriber Feature, a subscriber can be logged on in one of two ways:

- As an LX subscriber with the attributes of that subscriber (if the LX subscriber account exists)
- Or, if the LX subscriber account does *not* exist, as the default (InReach) subscriber.

Under either scenario, the subscriber must have an account on the RSA Authentication Manager server. If the subscriber account also exists on the LX unit, the subscriber is logged on under that account and given the attributes of that account. If the subscriber account does *not* exist on the LX unit, the subscriber is logged on under his RSA Authentication Manager account with the attributes of the default (InReach) account.

Use the **securid local subscriber enable** command to configure the RSA Authentication Manager Local Subscriber Feature for the LX unit; for example:

```
AAA:0 >>securid local subscriber enable
```

When the RSA Authentication Manager Local Subscriber Feature is set to only, the subscriber can only be logged in if the subscriber account is configured on both the LX unit and the RSA Authentication Manager server *and* the subscriber account on the LX server has the same name as the subscriber account on the RSA Authentication Manager server.

Use the **securid local subscriber only** command to set the RSA Authentication Manager Local Subscriber Feature to only; for example:

```
AAA:0 >>securid local subscriber only
```

RSA SecurID sdconf.rec

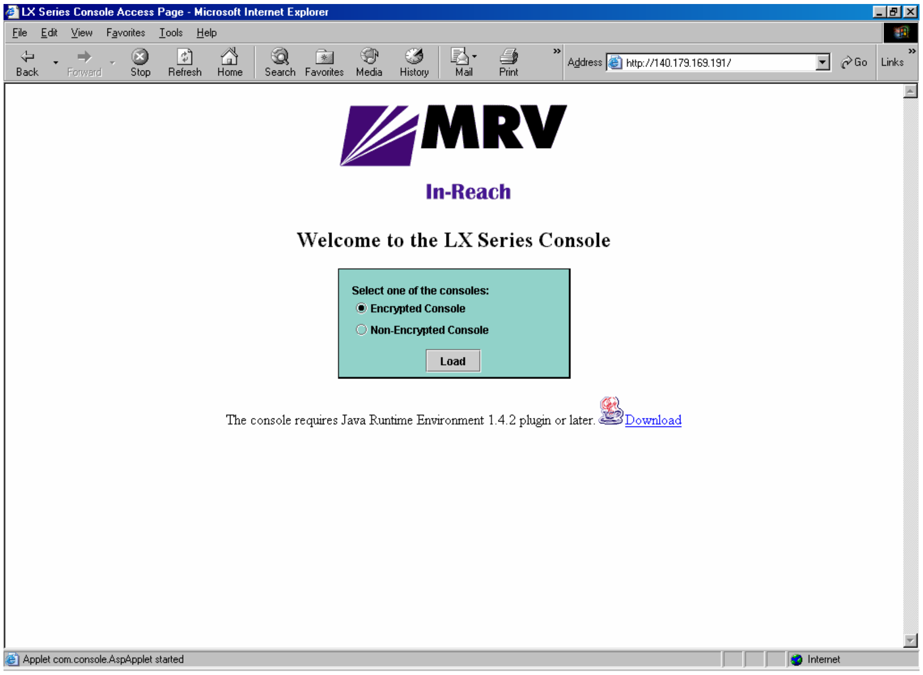
The LX software now supports the import of sdconf.rec files. To use the sdconf.rec file, download it into the LX / config directory. If this file is present on the LX, the RSA Authentication Manager system characteristics included within the sdconf.rec file will be used, and configuration of the RSA Authentication Manager attributes will be blocked at the CLI command level.

To download the sdconf.rec file:

1. Go to the shell.
2. Change to the directory cd / config directory.
3. From /config, perform an FTP and retrieve the sdconf.rec file.

Setting Up RSA SecurID Authentication (Web Interface)

1. Point your browser to the LX IP address. (Browser must have Java 1.4.2 or higher installed.)



LX Series Console Access Page - Microsoft Internet Explorer

Address: http://140.179.169.191/

MRV In-Reach

Welcome to the LX Series Console

Select one of the consoles:

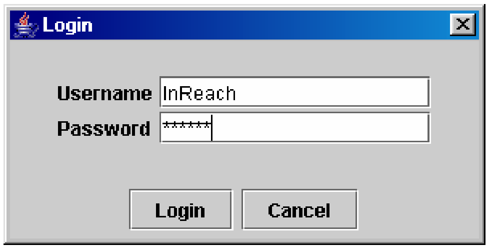
● Encrypted Console

○ Non-Encrypted Console

The console requires Java Runtime Environment 1.4.2 plugin or later. Download

Applet com.console.AspApplet started

2. Login to the LX unit.

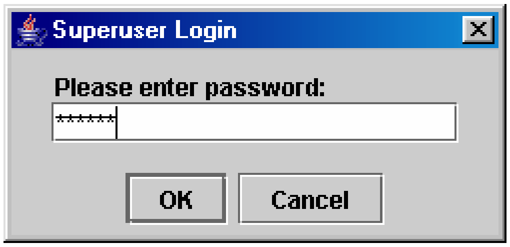


Login

Username: InReach

Password: ******

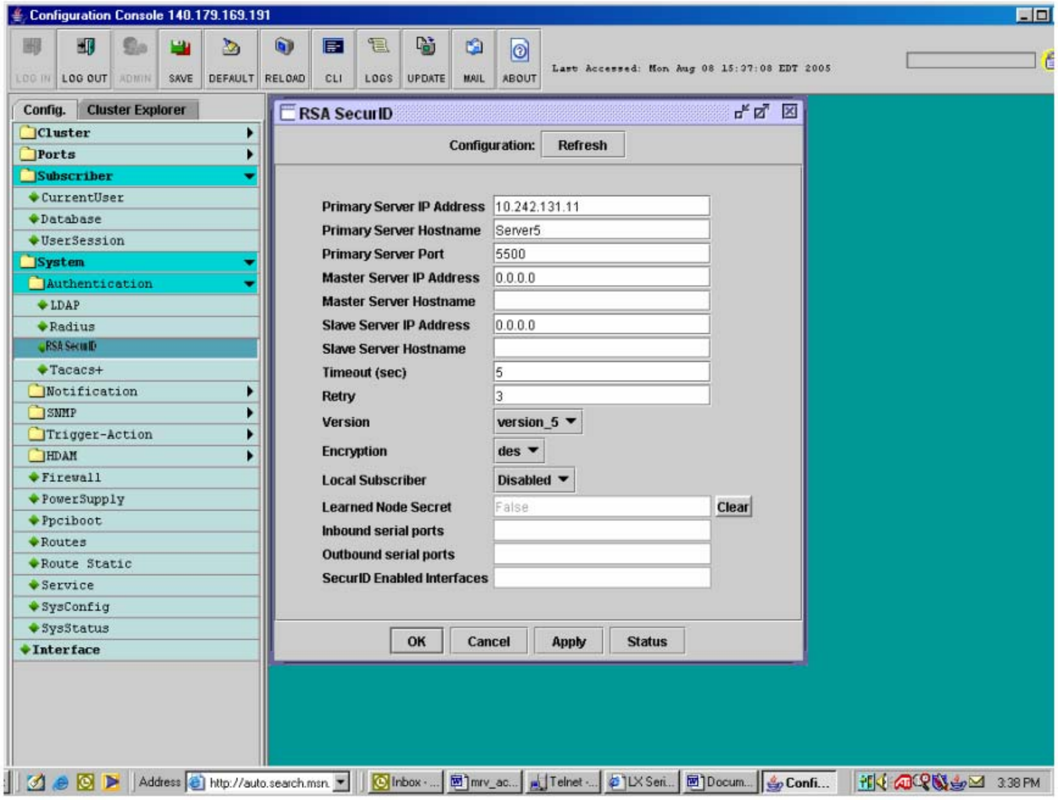
3. Click the Admin button on the upper tool bar.



Superuser Login

Please enter password: ******

4. Select SecurID under the Authentication Folder from the navigation tool bar on the left. Enter the desired information for your site.



Primary Server IP Address	10.242.131.11
Primary Server Hostname	Server5
Primary Server Port	5500
Master Server IP Address	0.0.0.0
Master Server Hostname	
Slave Server IP Address	0.0.0.0
Slave Server Hostname	
Timeout (sec)	5
Retry	3
Version	version_5
Encryption	des
Local Subscriber	Disabled
Learned Node Secret	False
Inbound serial ports	
Outbound serial ports	
SecurID Enabled Interfaces	

Setting Up RADIUS (Command Line Interface)

RADIUS Primary Authentication Server Commands

```
Login: InReach
Password: access
InReach:0 >enable
Password:******
InReach:0 >>configuration
Config:0 >>aaa

AAA:0>> radius primary authentication server address 10.242.131.13
AAA:0 >>radius primary authentication server port 1645
AAA:0 >>radius primary authentication server port 1812
AAA:0 >>radius primary authentication server secret STRING
AAA:0 >>radius primary authentication server retransmit 3
AAA:0 >>radius primary authentication server timeout 7
```

RADIUS Primary Accounting Server Commands

```
AAA:0>> radius secondary accounting server address 10.242.131.13
AAA:0 >>radius secondary accounting server port 1646
AAA:0 >>radius secondary accounting server port 1813
AAA:0 >>radius secondary accounting server secret STRING
AAA:0 >>radius secondary accounting server retransmit 3
AAA:0 >>radius secondary accounting server timeout 7
```

RADIUS Secondary Authentication Server Commands

```
AAA:0>> radius secondary authentication server address 10.242.131.13
AAA:0 >>radius secondary authentication server port 1645
AAA:0 >>radius secondary authentication server port 1812
AAA:0 >>radius secondary authentication server secret STRING
AAA:0 >>radius secondary authentication server retransmit 3
AAA:0 >>radius secondary authentication server timeout 7
```

RADIUS Secondary Accounting Server Commands

```
AAA:0>> radius secondary accounting server address 10.242.131.13
AAA:0 >>radius secondary accounting server port 1646
AAA:0 >>radius secondary accounting server port 1813
AAA:0 >>radius secondary accounting server secret STRING
AAA:0 >>radius secondary accounting server retransmit 3
AAA:0 >>radius secondary accounting server timeout 7
```

Port Commands

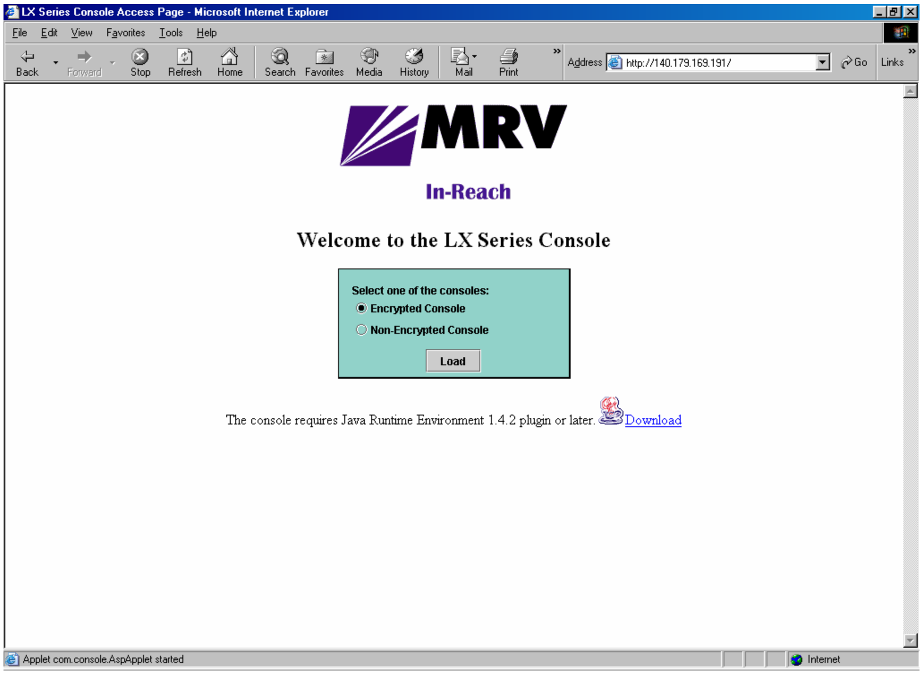
```
Config:0 >>port async #
Async #:0 >>authentication outbound radius enable
Async #:0 >>authentication inbound radius enable
Async #:0 >>radius accounting enable
```

Interface Commands

```
Config:0 >>interface #
Intf #:0 >>authentication radius enable
Intf #:0 >>radius accounting enable
```

Setting Up RADIUS (Web Interface)

1. Point your browser to the LX IP address.


LX Series Console Access Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History Mail Print
Address http://140.179.169.191/
Go Links
MRV
In-Reach

Welcome to the LX Series Console

Select one of the consoles:

● Encrypted Console

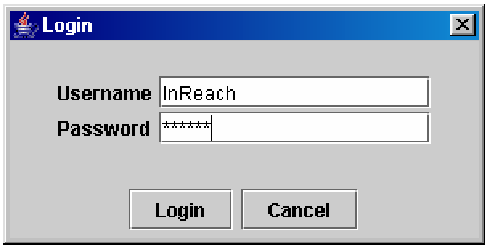
○ Non-Encrypted Console

Load

The console requires Java Runtime Environment 1.4.2 plugin or later. Download

Applet com.console.AspApplet started

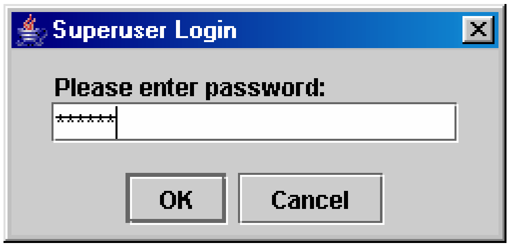
2. Login to the LX unit.



Username InReach

Password ******

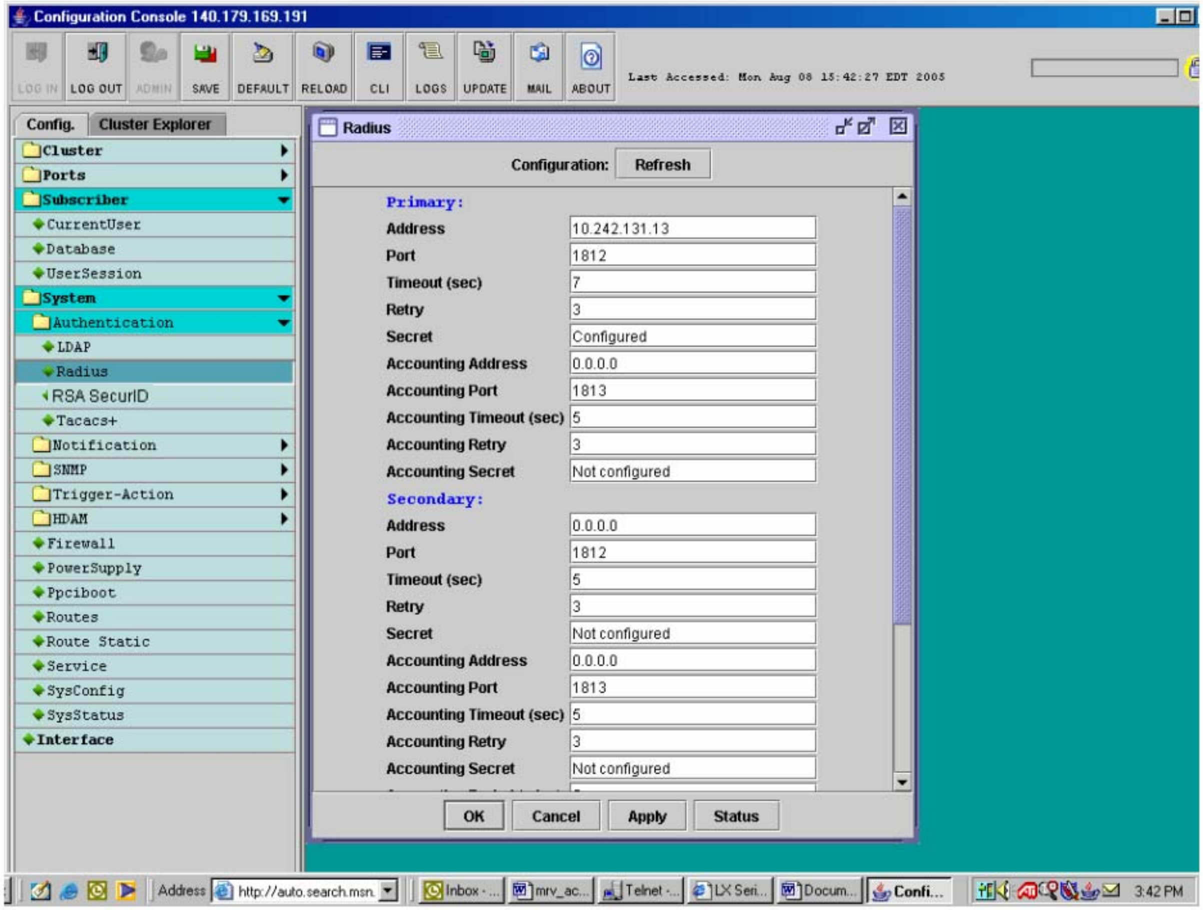
3. Click the Admin button on the upper tool bar.



Please enter password:

******

4. Select RADIUS under the Authentication Folder from the navigation tool bar on the left. Enter the desired information for your site.



Last Accessed: Mon Aug 08 15:42:27 EDT 2005

Primary:

Address	10.242.131.13
Port	1812
Timeout (sec)	7
Retry	3
Secret	Configured
Accounting Address	0.0.0.0
Accounting Port	1813
Accounting Timeout (sec)	5
Accounting Retry	3
Accounting Secret	Not configured

Secondary:

Address	0.0.0.0
Port	1812
Timeout (sec)	5
Retry	3
Secret	Not configured
Accounting Address	0.0.0.0
Accounting Port	1813
Accounting Timeout (sec)	5
Accounting Retry	3
Accounting Secret	Not configured

]

Setting Up TACACS+

You can implement TACACS+ authentication and TACACS+ accounting at the server level and for specific interfaces and asynchronous ports on the LX unit.

Access the AAA Configuration mode on the LX.

TACACS+ Primary Authentication Server Commands

```
AAA:0>> tacacs+ primary authentication server address 10.242.131.15
AAA:0 >>tacacs+ primary authentication server port 49
AAA:0 >>tacacs+ primary authentication server secret STRING
AAA:0 >>tacacs+ primary authentication server retransmit 3
AAA:0 >>tacacs+ primary authentication server timeout 7
```

TACACS+ Primary Accounting Server Commands

```
AAA:0>> tacacs+ primary accounting server address 10.242.131.15
AAA:0 >>tacacs+ primary accounting server port 49
AAA:0 >>tacacs+ primary accounting server secret STRING
AAA:0 >>tacacs+ primary accounting server retransmit 3
AAA:0 >>tacacs+ primary accounting server timeout 7
```

TACACS+ Secondary Authentication Server Commands

```
AAA:0>> tacacs+ secondary authentication server address 10.242.131.15
AAA:0 >>tacacs+ secondary authentication server port 49
AAA:0 >>tacacs+ secondary authentication server secret STRING
AAA:0 >>tacacs+ secondary authentication server retransmit 3
AAA:0 >>tacacs+ secondary authentication server timeout 7
```

TACACS+ Secondary Accounting Server Commands

```
AAA:0>> tacacs+ secondary accounting server address 10.242.131.13
AAA:0 >>tacacs+ secondary accounting server port 1646
AAA:0 >>tacacs+ secondary accounting server port 1813
AAA:0 >>tacacs+ secondary accounting server secret STRING
AAA:0 >>tacacs+ secondary accounting server retransmit 3
AAA:0 >>tacacs+ secondary accounting server timeout 7
```

Port Commands

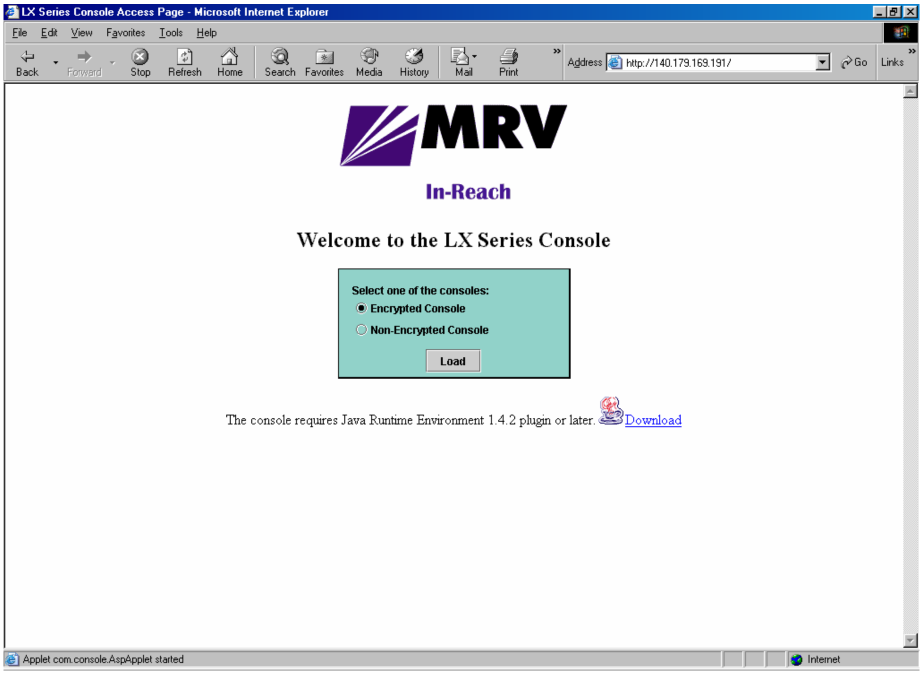
```
Config:0 >>port async #
Async #:0 >>authentication outbound tacacs+ enable
Async #:0 >>authentication inbound tacacs+ enable
Async #:0 >>tacacs+ accounting enable
```

Interface Commands

```
Config:0 >>interface #
Intf #:0 >>authentication tacacs+ enable
Intf #:0 >>tacacs+ accounting enable
```

Setting Up TACACS+ (Web Interface)

1. Point your browser to the LX IP address.



LX Series Console Access Page - Microsoft Internet Explorer

Address: http://140.179.169.191/

Welcome to the LX Series Console

Select one of the consoles:

● Encrypted Console

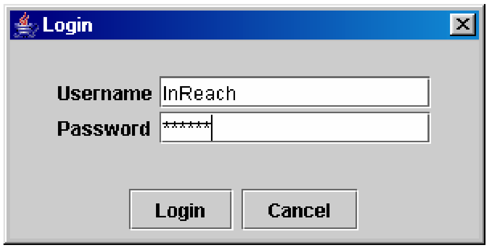
○ Non-Encrypted Console

Load

The console requires Java Runtime Environment 1.4.2 plugin or later. Download

Applet com.console.AspApplet started

2. Login to the LX unit.

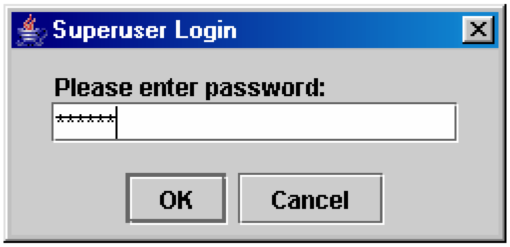


Login

Username: InReach

Password: ******

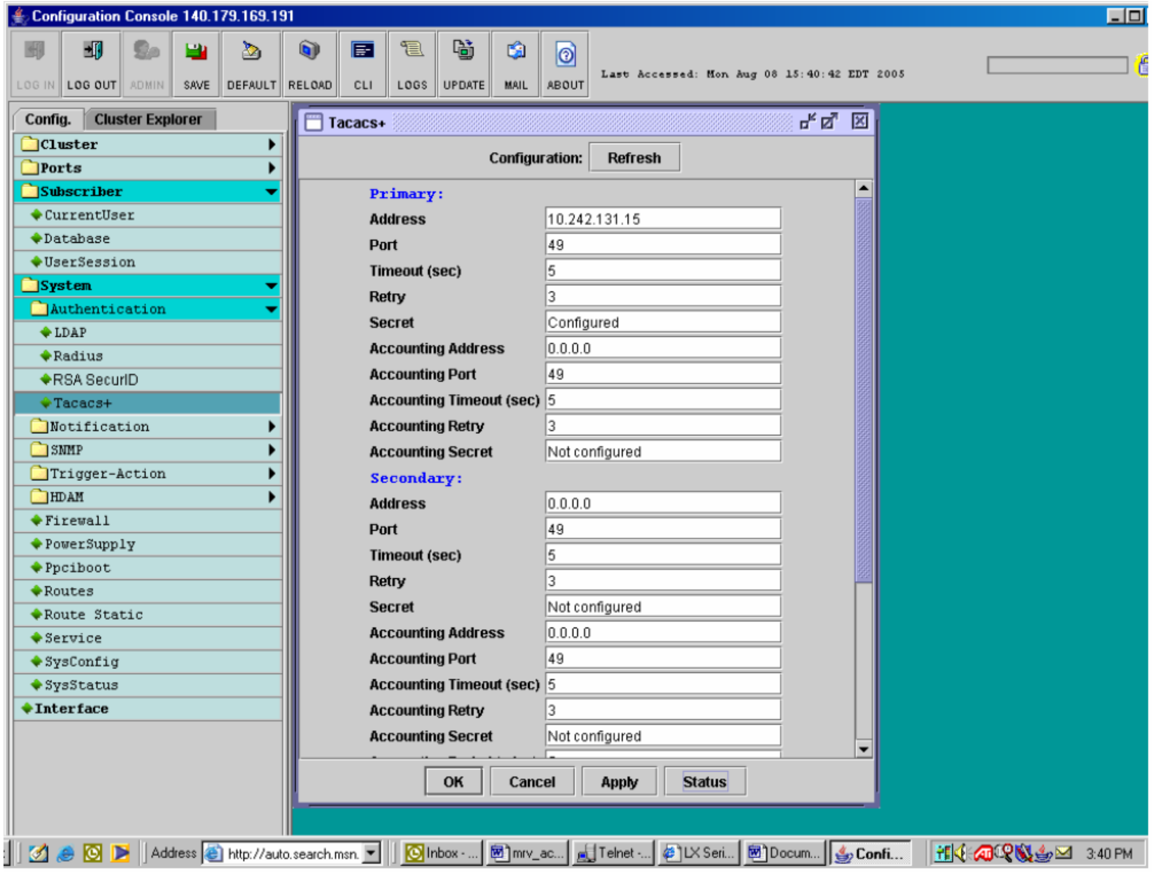
3. Click the Admin button on the upper tool bar.



Superuser Login

Please enter password: ******

4. Select TACACS+ under the Authentication Folder from the navigation tool bar on the left. Enter the desired information for your site.



Primary:

Address	10.242.131.15
Port	49
Timeout (sec)	5
Retry	3
Secret	Configured
Accounting Address	0.0.0.0
Accounting Port	49
Accounting Timeout (sec)	5
Accounting Retry	3
Accounting Secret	Not configured

Secondary:

Address	0.0.0.0
Port	49
Timeout (sec)	5
Retry	3
Secret	Not configured
Accounting Address	0.0.0.0
Accounting Port	49
Accounting Timeout (sec)	5
Accounting Retry	3
Accounting Secret	Not configured

Certification Checklist

Date Tested: March 8, 2006

Certification Environment		
Product Name	**Version Information**	**Operating System**
RSA Authentication Manager	6.1	Windows 2000
LX Series	3.6.0	LX-4000 LX-8000

Mandatory Functionality			
RSA Native Protocol		**RADIUS Protocol**	
New PIN Mode			
Force Authentication After New PIN	✓	Force Authentication After New PIN	✓
System Generated PIN	✓	System Generated PIN	✓
User Defined (4-8 Alphanumeric)	✓	User Defined (4-8 Alphanumeric)	✓
User Defined (5-7 Numeric)	✓	User Defined (5-7 Numeric)	✓
User Selectable	✓	User Selectable	✓
Deny 4 and 8 Digit PIN	✓	Deny 4 and 8 Digit PIN	✓
Deny Alphanumeric PIN	✓	Deny Alphanumeric PIN	✓
PASSCODE			
16 Digit PASSCODE	✓	16 Digit PASSCODE	✓
4 Digit Password	✓	4 Digit Password	✓
Next Tokencode Mode			
Next Tokencode Mode	✓	Next Tokencode Mode	✓
Load Balancing / Reliability Testing			
Failover (3-10 Replicas)	✓	Failover	✓
Name Locking Enabled	✓	Name Locking Enabled	
No RSA Authentication Manager	✓	No RSA Authentication Manager	✓

Additional Functionality			
RSA Software Token API Functionality			
System Generated PIN	N/A	System Generated PIN	N/A
User Defined (8 Digit Numeric)	N/A	User Defined (8 Digit Numeric)	N/A
User Selectable	N/A	User Selectable	N/A
Next Tokencode Mode	N/A	Next Tokencode Mode	N/A
Domain Credential Functionality			
Determine Cached Credential State	N/A	Determine Cached Credential State	
Set Domain Credential	N/A	Set Domain Credential	
Retrieve Domain Credential	N/A	Retrieve Domain Credential	

PAR / SWA

✓ = Pass ✗ = Fail N/A = Non-Available Function